



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,555	04/12/2004	George E. Gerpheide	2673.C2MW.NP	1811
26986	7590	10/06/2005	EXAMINER	
MORRIS O'BRYANT COMPAGNI, P.C. 136 SOUTH MAIN STREET SUITE 700 SALT LAKE CITY, UT 84101			NGUYEN, HIEN N	
			ART UNIT	PAPER NUMBER
			2824	

DATE MAILED: 10/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

**SUPPLEMENTAL
Notice of Allowability**

Application No.

10/822,555

Examiner

Hien N. Nguyen

Applicant(s)

GERPHEIDE

Art Unit

2824

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 4/12/04.

2. ☒ The allowed claim(s) is/are ~~1-37~~

1-37 (Rule 126) 10/3/05

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.

(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____

7. ☐ Examiner's Amendment/Comment

8. ☐ Examiner's Statement of Reasons for Allowance

9. ☒ Other ATTACHMENT A (1-3).

10/3/05
**RICHARD ELMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800**

Art Unit: 2824

DETAILED ACTION

EXAMINER'S AMENDMENT

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 31-³⁸~~38~~ has been renumbered 30-37. See


Attachment A (page 1-3).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien N. Nguyen whose telephone number is (571) 272-1879. The examiner can normally be reached on Monday through Thursday 9:30 AM to 7:00 PM..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on (571) 272-1869. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2824

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

H. Nguyen 
September 30, 2005

24. The zero-drift analog memory cell according to claim 23, wherein the tank comprises a transistor.

25. The zero-drift analog memory cell according to claim 6, wherein the input and output signals comprise analog voltages.

26. The zero-drift analog memory cell according to claim 6, wherein the input and output signals comprise optical signals.

27. The zero-drift analog memory cell according to claim 6, wherein the input and output signals comprise chemical signals.

28. The zero-drift analog memory cell according to claim 6, wherein the input and output signals comprise mechanical signals.

29. The zero-drift analog memory cell according to claim 6, wherein the input and output signals comprise magnetic signals.

30
31. A zero zero-drift analog memory array comprising a plurality of zero-drift and hold analog memory cells, each cell comprising:
an input signal;
a sample signal having sample and hold states;
a tank for receiving the input signal and the sample signal and configured for generating and holding an output signal during the sample and hold states, respectively; and
a zero-drift transfer function (ZDF) feedback loop disposed in parallel with the tank and configured to maintain the output signal at a desired analog signal level during the hold state.

30
31
32. The zero-drift analog memory array according to claim 11, wherein the ZDF feedback loop comprises:

a controlled oscillator (CO) for receiving the output voltage signal and generating an oscillating signal; and

a harmonic frequency comparator (HFC) for receiving a reference signal and the oscillating signal and generating a correction signal for input to the tank based on a comparison between the frequency/phase of the oscillating signal and multiples of frequency on the reference signal.

32
33. The zero-drift analog memory array according to claim 14, wherein the CO comprises a voltage controlled oscillator.

33
34. The zero-drift analog memory array according to claim 14, wherein the HFC comprises:
a multiplier for receiving the oscillating signal and reference signals and generating a modulated signal; and
a stability filter for receiving the modulated signal and generating the correction signal.

34
35. The zero-drift analog memory array according to claim 16, wherein the stability filter comprises a transfer function to stabilize a feedback loop formed by the tank, CO and HFC.

35
36. The zero-drift analog memory array according to claim 14, wherein the HFC comprises two transconductance amplifiers having outputs tied together for generating the correction signal.

36
37. A method for receiving an analog input signal and generating a stable analog output signal, said method comprising:
providing a tank for sampling and holding the input signal, during sample and hold states, respectively;
providing a zero-drift transfer function (ZDF) feedback loop in parallel with the tank circuit;
sampling the input signal during the sample state to generate an output signal; and

maintaining the output signal at a desired signal level by eliminating output signal drift using the ZDF feedback loop.

37. The method according to claim 37, wherein, providing the ZDF feedback loop comprises providing:
a controlled oscillator (CO) for receiving the analog output signal and generating an oscillating signal; and
a harmonic frequency comparator (HFC) for receiving a reference signal and the oscillating signal and generating a correction signal input to the tank based on a comparison between the frequency/phase of the oscillating signal and multiples of frequency on the reference signal.